US 20060211453A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2006/0211453 A1**

Schick (43) **Pub. Date: Sep. 21, 2006**

(54) **SYSTEM FOR DIALING A TELEPHONE NUMBER STORED IN A MOBILE ELECTRONIC DEVICE WHEN THE DEVICE IS AWAY FROM ITS HOME CALLING AREA**

(76) Inventor: **Andrew N. Schick**, Lawrenceville, GA (US)

Correspondence Address:
NEEDLE & ROSENBERG, P.C.
SUITE 1000
999 PEACHTREE STREET
ATLANTA, GA 30309-3915 (US)

(21) Appl. No.: **11/080,136**

(22) Filed: **Mar. 15, 2005**

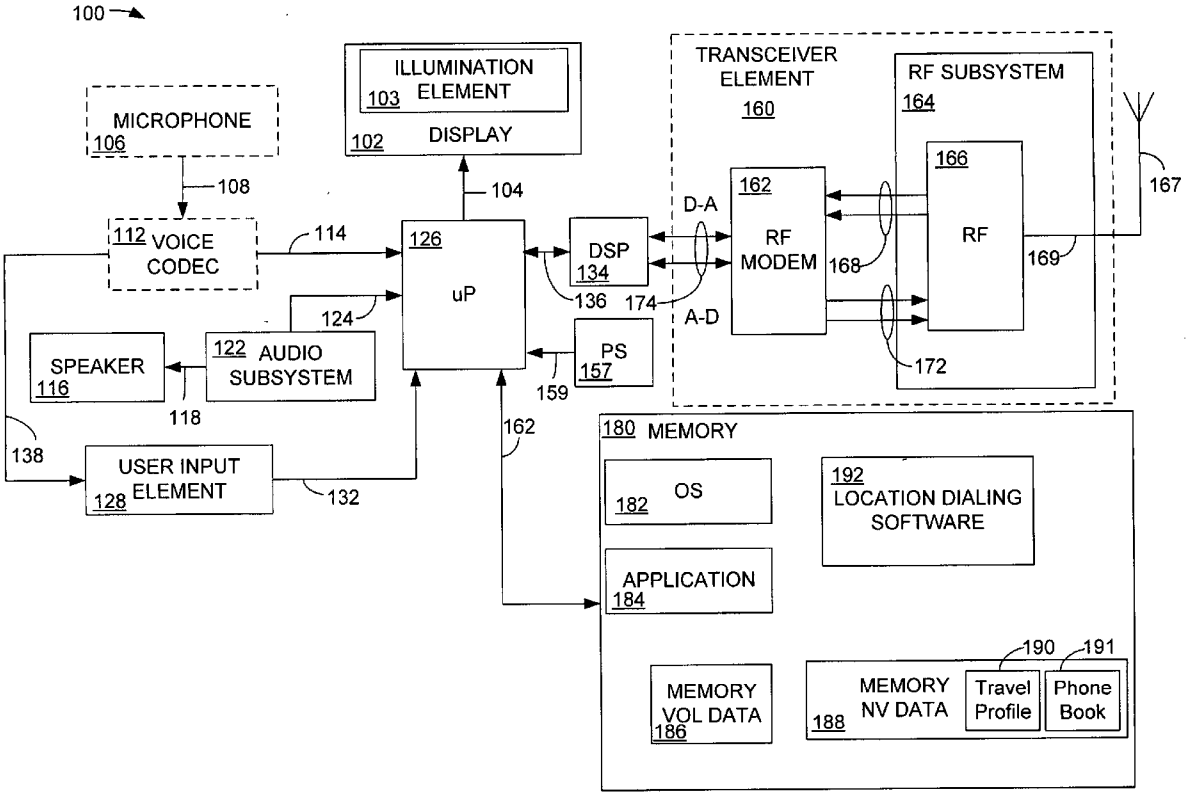
Publication Classification

(51) **Int. Cl.**
H04M 3/00 (2006.01)
H04B 1/38 (2006.01)

(52) **U.S. Cl.** **455/564**; 455/418; 455/432.1; 455/550.1

(57) **ABSTRACT**

A system for dialing telephone numbers stored in a mobile electronic device when the device is in away from a home calling area is described. The system has a memory element, microprocessor, and a transceiver element. The memory element is operable for storing the telephone number, a travel profile, and location dialing software, which is operable for prompting the memory element to generate dialing instruction signals associated with the travel profile. The microprocessor is operatively coupled to receive the dialing instruction signals from the memory element and generates dialing signals in response to receiving the dialing instruction signals. The transceiver element is coupled to receive the dialing signals and is operable for dialing the telephone number when the mobile electronic device is away from the home calling area. In an alternative implementation, the system may include a caller identification feature.



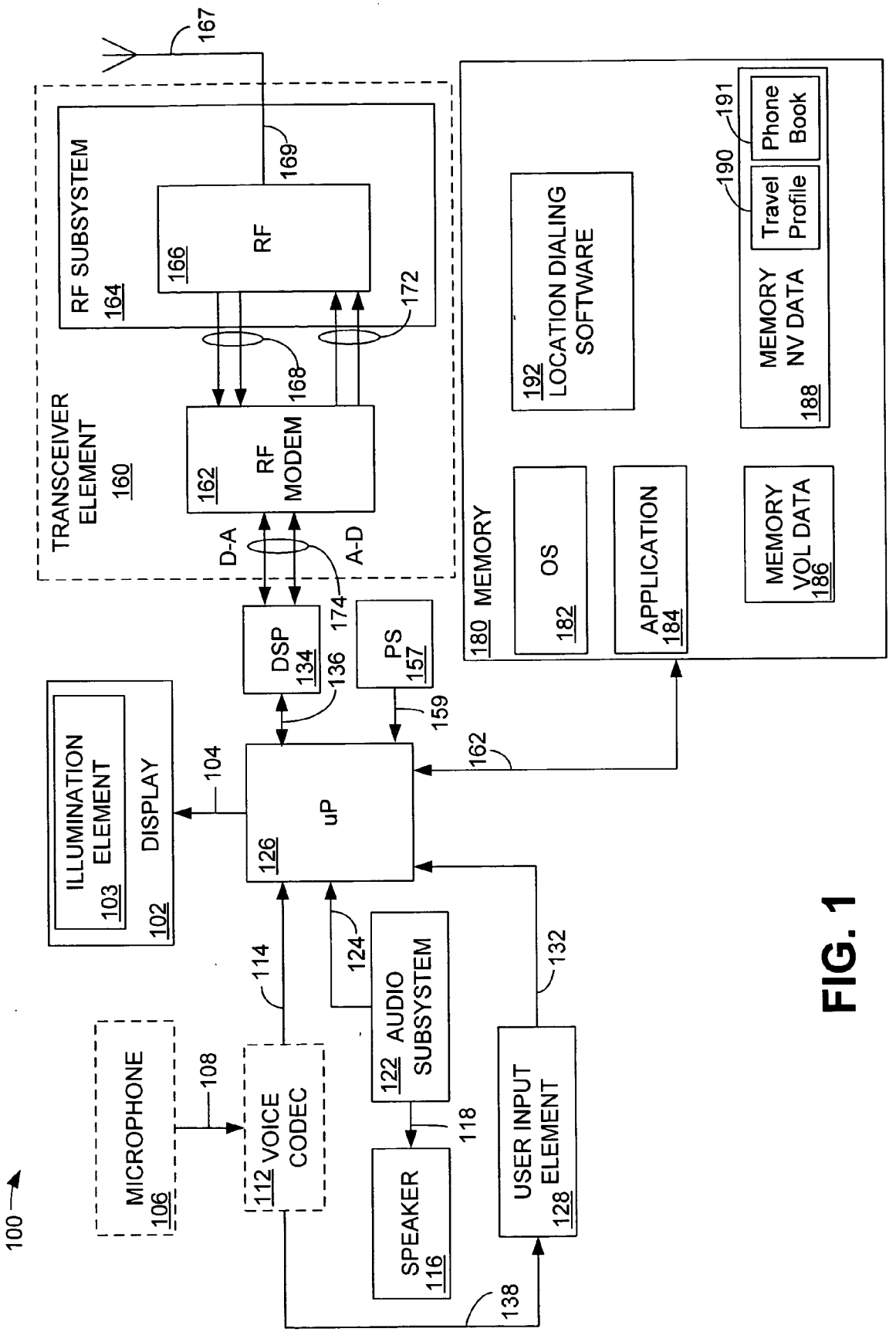

100
MICROPHONE 106
108
112 VOICE CODEC
114
124
122 AUDIO SUBSYSTEM
118
SPEAKER 116
138
132
USER INPUT ELEMENT 128
ILLUMINATION ELEMENT 103
DISPLAY 102
104
uP 126
DSP 134
136
174
PS 157
159
162
D-A
A-D
TRANSCEIVER ELEMENT 160
RF SUBSYSTEM 164
RF 166
169
167
168
172
RF MODEM 162
180 MEMORY
OS 182
APPLICATION 184
MEMORY VOL DATA 186
192 LOCATION DIALING SOFTWARE
MEMORY NV DATA 188
190
Travel Profile
191
Phone Book

FIG. 1

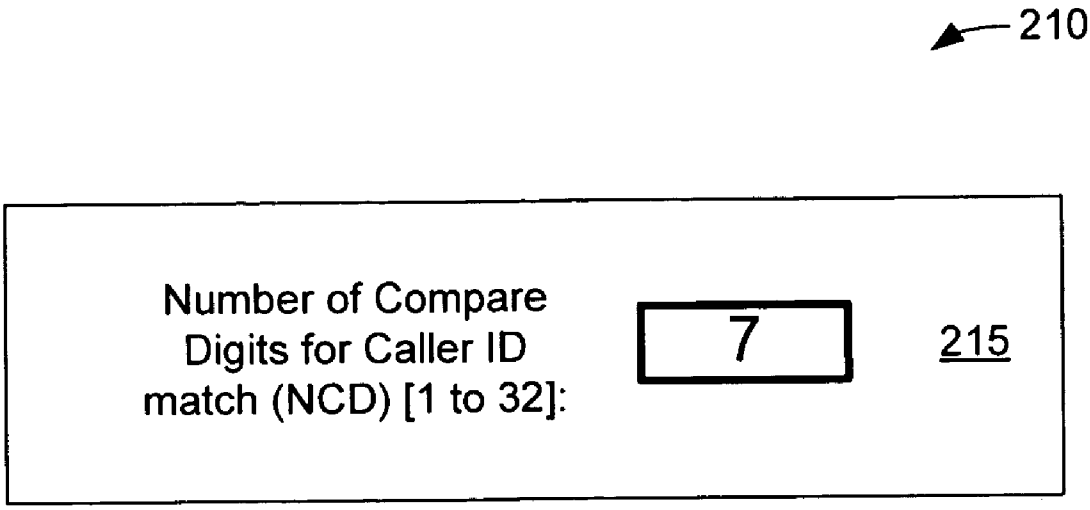

210
Number of Compare Digits for Caller ID match (NCD) [1 to 32]:
7
215

FIG. 2A

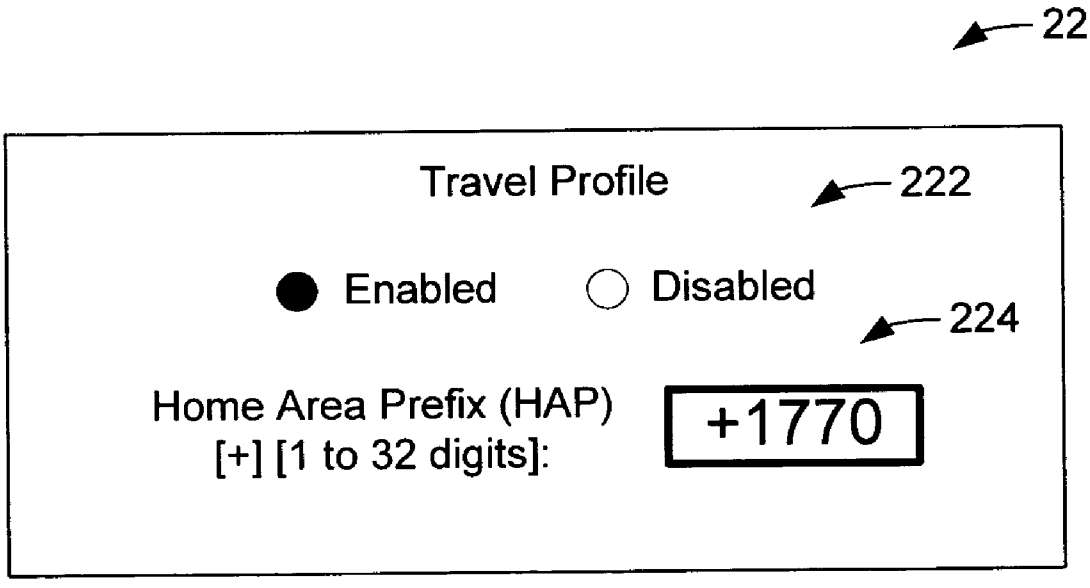

220
Travel Profile
222
Enabled
Disabled
224
Home Area Prefix (HAP) [+] [1 to 32 digits]:
+1770

FIG. 2B

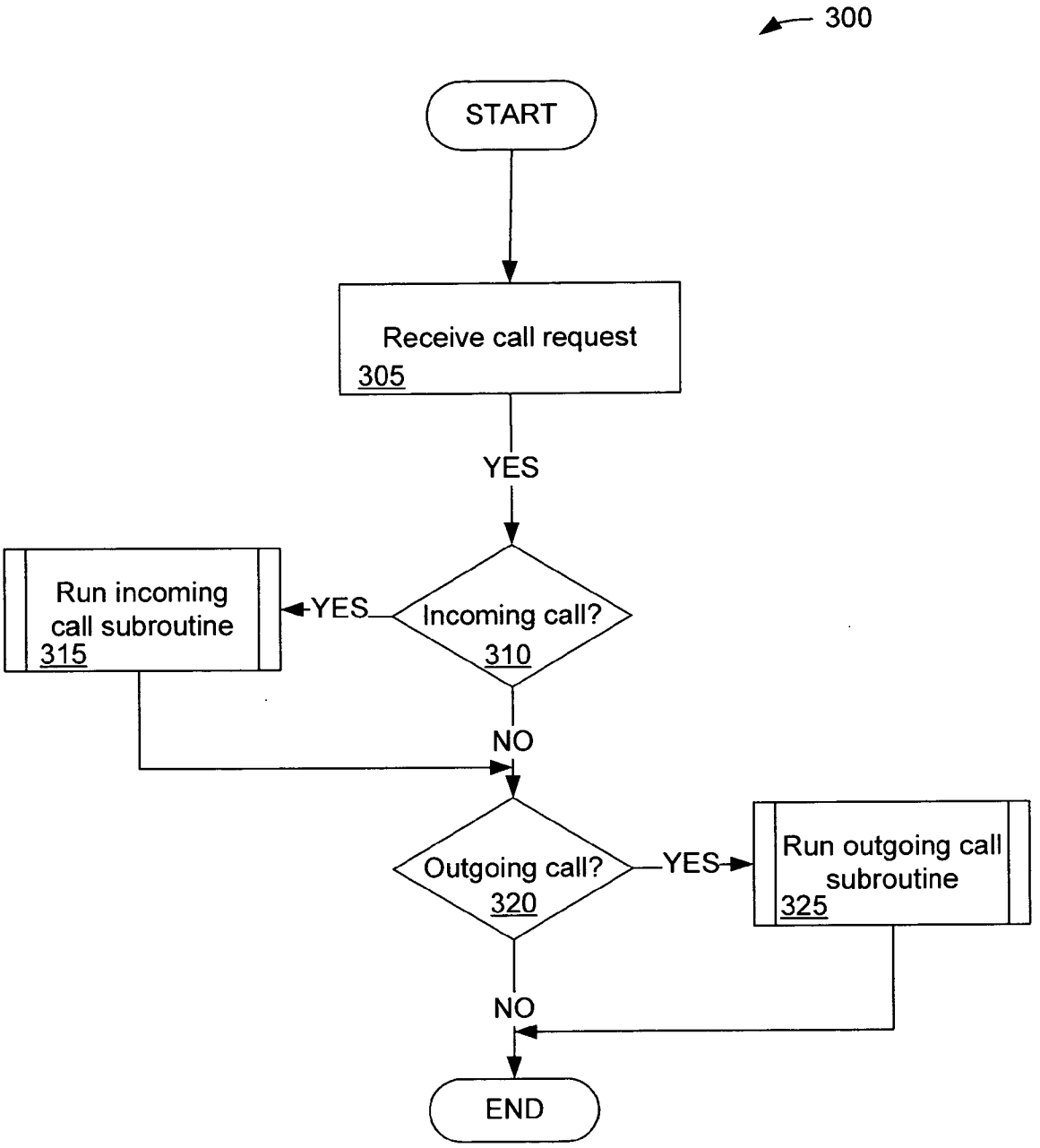

300
START
Receive call request
305
YES
Incoming call?
310
YES
Run incoming call subroutine
315
NO
Outgoing call?
320
YES
Run outgoing call subroutine
325
NO
END

FIG. 3

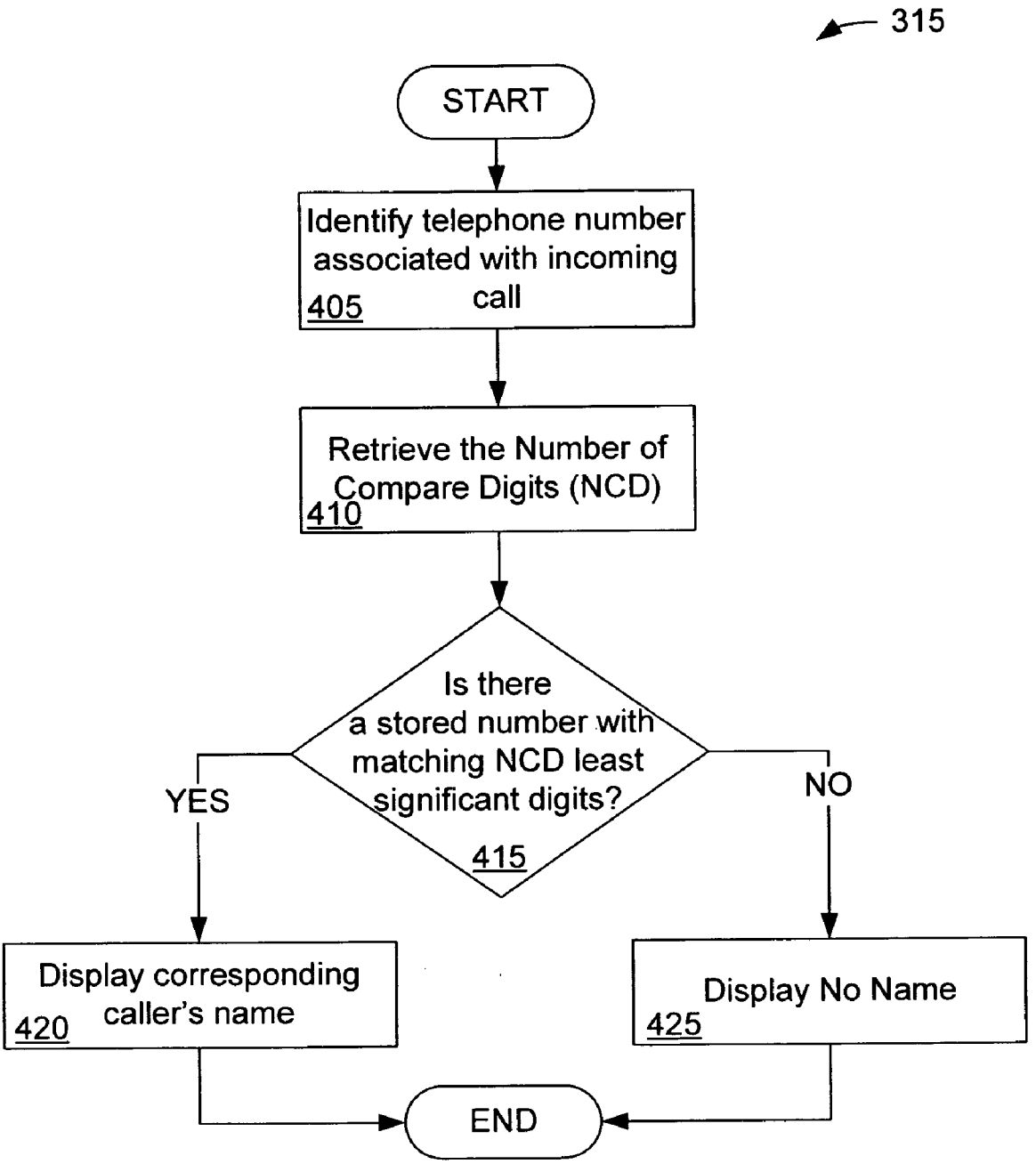

315
START
Identify telephone number associated with incoming call
405
Retrieve the Number of Compare Digits (NCD)
410
Is there a stored number with matching NCD least significant digits?
415
YES
NO
Display corresponding caller's name
420
Display No Name
425
END

FIG. 4

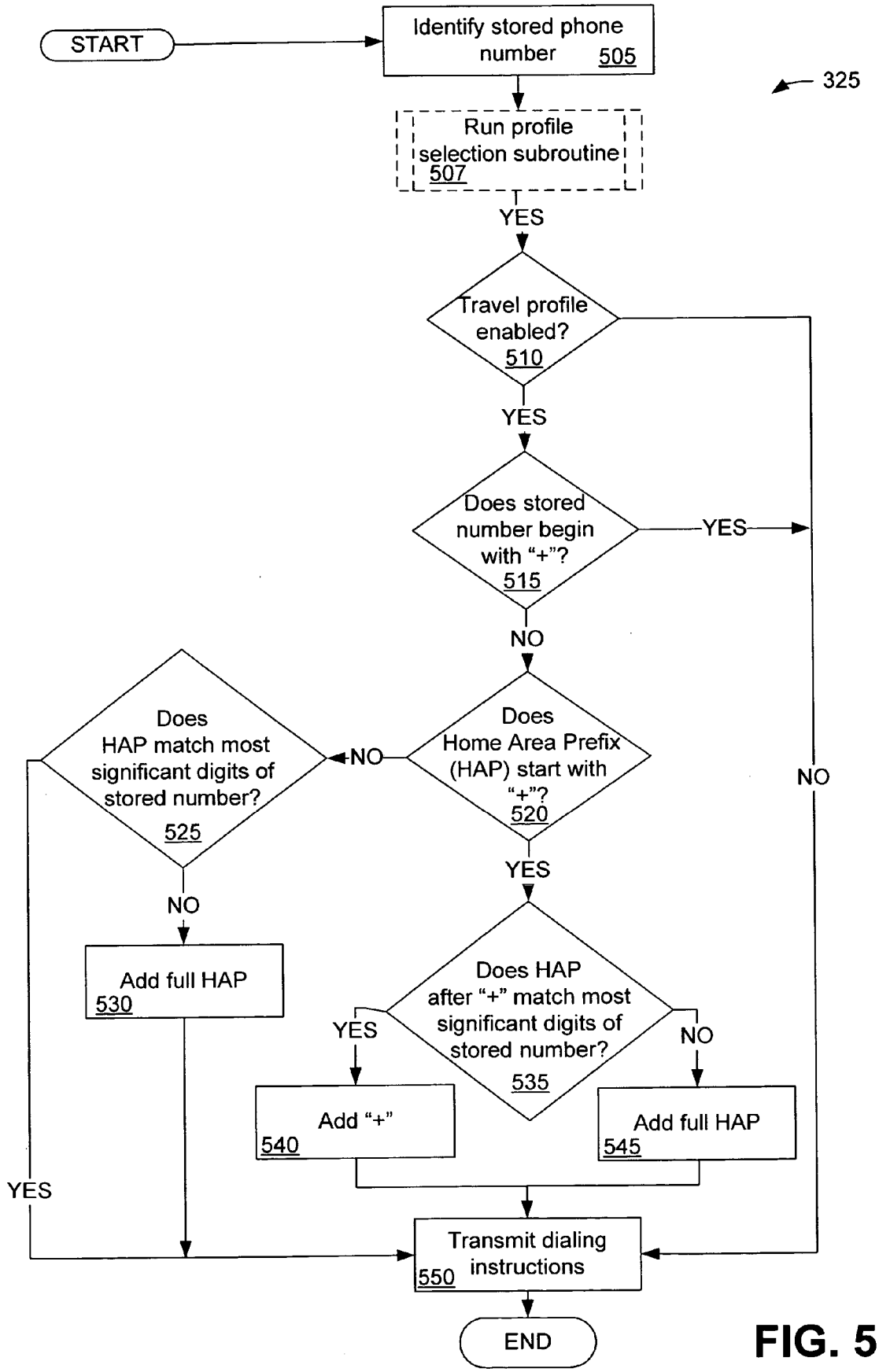

START
Identify stored phone number 505
325
Run profile selection subroutine 507
YES
Travel profile enabled? 510
YES
Does stored number begin with "+"? 515
YES
NO
Does Home Area Prefix (HAP) start with "+"? 520
NO
Does HAP match most significant digits of stored number? 525
NO
YES
Add full HAP 530
Does HAP after "+" match most significant digits of stored number? 535
YES
NO
Add "+" 540
Add full HAP 545
YES
NO
Transmit dialing instructions 550
END

FIG. 5

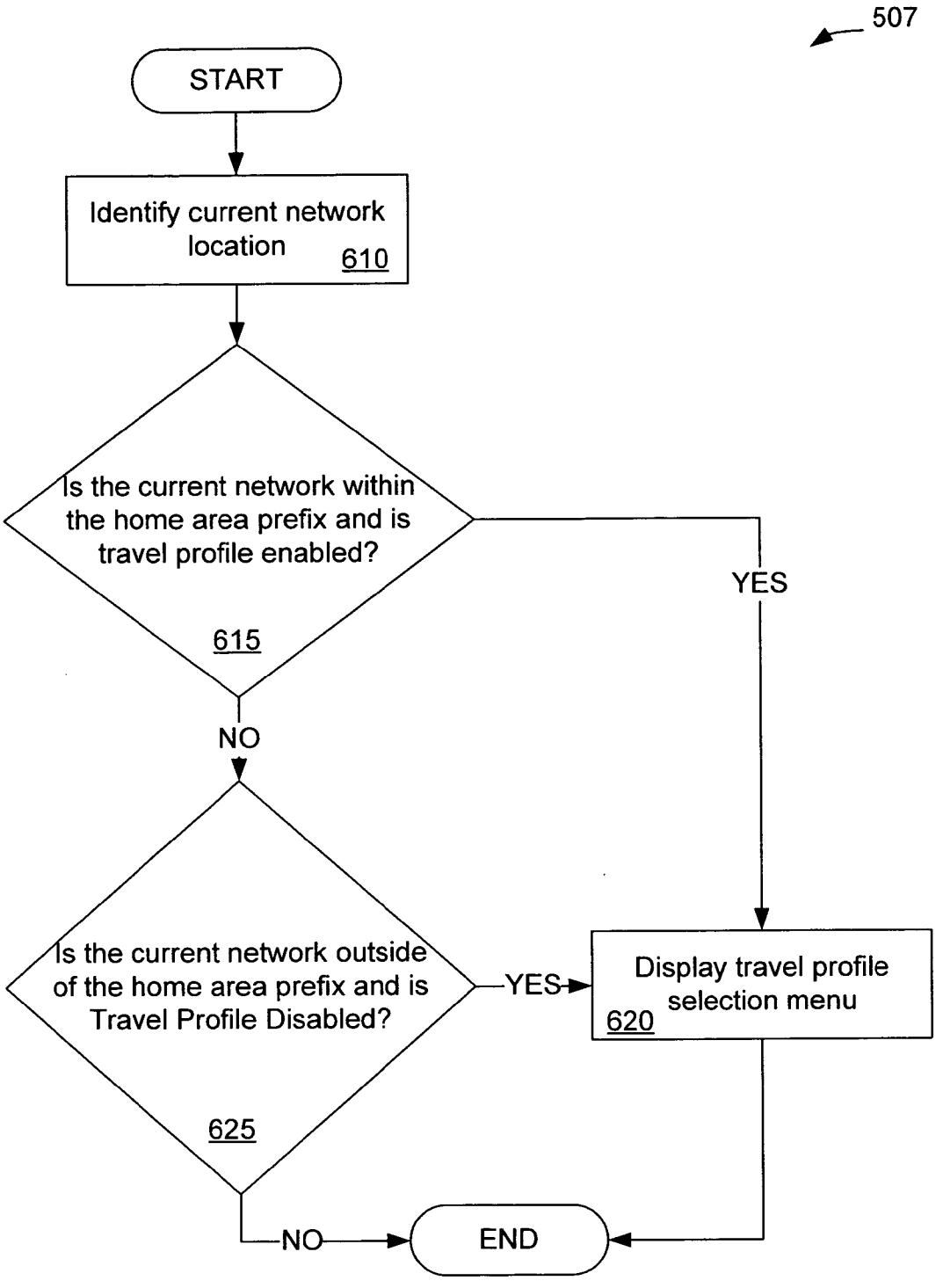

507
START
Identify current network location
610
Is the current network within the home area prefix and is travel profile enabled?
615
YES
NO
Is the current network outside of the home area prefix and is Travel Profile Disabled?
625
YES
Display travel profile selection menu
620
NO
END

FIG. 6

SYSTEM FOR DIALING A TELEPHONE NUMBER STORED IN A MOBILE ELECTRONIC DEVICE WHEN THE DEVICE IS AWAY FROM ITS HOME CALLING AREA

BACKGROUND

[0001] With the increasing availability of efficient, low cost electronic modules, mobile electronic devices are becoming more widespread. For example, the general availability of personal digital assistants (PDAs) and portable communication devices, such as wireless telephones, are making these devices more popular. Regular use of mobile electronic devices may result in an excessive amount of telephone numbers stored in these devices, which correspondingly produces internal telephone books with large amounts of data. In storing these numbers, a user may only enter the numbers necessary for dialing from his home location. For example, a user that resides in a city with only seven digit dialing may only enter seven digits.

[0002] Because mobile electronic devices are by their nature portable, users often desire utilizing them in remote locations, such as when traveling. Using these devices in locations other than the device's home calling area may necessitate compliance with certain dialing conventions. For example, international calling requires entering a country code. These dialing conventions can make telephone numbers stored in the mobile electronic device unusable when the device is in a location other than its home calling area.

[0003] Therefore, there is a need for a mobile communication device that is easily usable from all calling areas.

SUMMARY

[0004] Embodiments of the invention include a system for dialing telephone numbers stored in a mobile electronic device when the device is away from its home calling area. The system has a memory element, a microprocessor, and a transceiver. The memory element is operable for storing the telephone number, a travel profile, and location dialing software, which is operable for prompting the memory element to generate dialing instruction signals associated with the travel profile. The microprocessor is operatively coupled to receive the dialing instruction signals from the memory element and generates dialing signals in response to receiving the dialing instruction signals. The transceiver element is coupled to receive the dialing signals and is operable for dialing the telephone number when the mobile electronic device is away from its home calling area.

[0005] Related methods of operation and computer readable media are also provided. Other systems, methods, features, and advantages of the invention will be or become apparent to one with skill in the art upon examination of the following figures and detailed description. It is intended that all such additional systems, methods, features, and advantages be included within this description, be within the scope of the invention, and be protected by the accompanying claims.

BRIEF DESCRIPTION OF THE FIGURES

[0006] The invention can be better understood with reference to the following figures. The components within the figures are not necessarily to scale, emphasis instead being placed upon clearly illustrating the principles of the invention. Moreover, in the figures, like reference numerals designate corresponding parts or blocks throughout the different views.

[0007] **FIG. 1** is a block diagram illustrating a mobile electronic device constructed in accordance with the invention.

[0008] **FIG. 2A** is a black diagram illustrating a number of comparison digits selection menu for the display of **FIG. 1**.

[0009] **FIG. 2B** is a block diagram illustrating a travel profile selection menu for the display of **FIG. 1**.

[0010] **FIG. 3** is a flow chart illustrating and algorithm that describes the operation of location dialing software of **FIG. 1**.

[0011] **FIG. 4** is a flow chart illustrating the incoming call subroutine of **FIG. 2A**.

[0012] **FIG. 5** is a flow chart illustrating the outgoing call subroutine of **FIG. 2A**.

[0013] **FIG. 6** is a flow chart illustrating the optional profile selection subroutine of **FIG. 5**.

DETAILED DESCRIPTION

[0014] While described below as being particularly applicable to a portable communication handset, such as a cellular-type telephone, or a personal digital assistant (PDA), the system for dialing telephone numbers stored in a mobile electronic device when the device is away from a home calling area is applicable to any mobile electronic device in which it is desirable to dial when the device is away from a home calling area.

[0015] The system for dialing telephone numbers stored in a mobile electronic device when the device is away from a home calling area can be implemented in software, hardware, or a combination thereof. In one embodiment, selected portions of this system are implemented in hardware and software. The hardware portion can be implemented using hardware logic. The software portion can be stored in a memory element and can be executed by a suitable instruction execution system (microprocessor). The hardware implementation can include any or a combination of the following technologies, which are all well known in the art: a discrete logic circuit(s) having logic gates for implementing logic functions upon data signals, an application specific integrated circuit (ASIC) having appropriate logic gates, a programmable gate array(s) (PGA), a field programmable gate array (FPGA), etc.

[0016] The software portion is referred to as location dialing software, which is described in greater detail below. The location dialing software, which comprises an ordered listing of executable instructions for implementing logical functions, can be embodied in any computer-readable medium for use by or in connection with an instruction execution system, apparatus, or device, such as a computer-based system, processor-containing system, or other system that can fetch the instructions from the instruction execution system, apparatus, or device and execute the instructions.

[0017] In the context of this document, a "computer-readable medium" can be any means that can contain, store, communicate, propagate, or transport the program for use by

or in connection with the instruction execution system, apparatus, or device. The computer-readable medium can be, for example, but, not limited to, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus, device, or propagation medium. More specific examples (a non-exhaustive list) of the computer-readable medium can include the following: an electrical connection (electronic) having one or more wires, a portable computer diskette (magnetic), a random access memory (RAM), a read-only memory (ROM), an erasable programmable read-only memory (EPROM or Flash memory) (magnetic), an optical fiber (optical), and a portable compact disc read-only memory (CDROM) (optical). Note that the computer-readable medium can even be paper or another suitable medium upon which the program is printed. The program can be electronically captured, via for instance optical scanning of the paper or other medium, then compiled, interpreted or otherwise processed in a suitable manner if necessary, and then stored in a computer memory.

[0018] **FIG. 1** is a block diagram illustrating a mobile electronic device **100** constructed in accordance with an embodiment of the invention. The mobile electronic device **100** generally includes a microprocessor **126** coupled to a memory element **180** via connection **162**. The microprocessor **126** is also coupled to a display element **102** via connection **104**, a digital signal processor (DSP) **134** via connection **136**, and a power source **157** via connection **159**. The display element **102**, if illuminated, may include an illumination element **103**.

[0019] The memory element **180** can include any one or a combination of volatile memory elements (e.g., random access memory (RAM), such as DRAM, SRAM, etc.)) and non-volatile memory elements (e.g., RAM, ROM, hard-drive, tape, CDROM, etc.). Moreover, the memory element **180** may incorporate electronic, magnetic, optical, and/or other types of storage media. Note that the memory element **180** can have a distributed architecture, where various components are situated remotely from one another, but are accessible by the microprocessor **126**.

[0020] The microprocessor **126** can be any special purpose or general purpose processor capable of executing the instructions contained in the software (to be described below) contained within memory element **180**.

[0021] The mobile electronic device **100** also includes a user input element **128** that is coupled to the microprocessor **126** via connection **132**. The user input element **128** can be, for example but not limited to, a keypad, stylus and screen, a trackball, a touch-sensitive pad, a finger actuated pointer device, a microphone, such as microphone **106**, (optionally shown coupled to the user input element **128** through a voice coder/decoder (codec) **112** via connection **138**), or any other interface for communicating user commands to the microprocessor **126**. For example, if the mobile electronic device **100** is a cellular-type mobile telephone, the user input element **128** may include a keypad for entering alphanumeric characters. If the mobile electronic device **100** is, for example, a PDA, then the user input element **128** can be a combination of a keypad, mouse, and a stylus for marking notations on an input screen. One skilled in the art will appreciate that the user input element **128** can be used to initiate any basic calling operations, such as dialing a telephone number.

[0022] The mobile electronic device **100** also includes an audio subsystem **122** and a speaker **116**. The audio subsystem **122** is coupled to the microprocessor **126** via connection **124** and supplies an audio signal on connection **118** to the speaker **116**. If the mobile electronic device **100** is a portable communication handset, the speaker **116** may be the speaker that the user places to his or her ear in order to listen to a voice conversation. If the mobile electronic device is a PDA, then the speaker **116** can provide audible output to the user. Furthermore, although omitted for simplicity, the audio subsystem **122** may also provide an interface to a headset type speaker device while the user input element **128** may provide an interface to a microphone so that the mobile electronic device **100** can be used with a portable headset.

[0023] If the mobile electronic device **100** is, for example, a portable cellular-type telephone handset, then it can also include a microphone **106**, a voice coder/decoder (codec) **112** and a transceiver element **160**. The microphone **106** is coupled to the voice codec **112** via connection **108**. The microphone converts audible sound energy into an electrical signal that is processed by the voice codec **112** and forwarded via connection **114** to the microprocessor **126**. The microprocessor **126** processes the input on connection **114** as known to those having ordinary skill in the art.

[0024] The DSP **134** is coupled to the transceiver element **160** via connection **174**. The connection **174**, while shown as two bi-directional communication lines, may also include the digital-to-analog and analog-to-digital conversion used to transmit and receive information using the transceiver element **160** (omitted from **FIG. 1** for simplicity). The transceiver element **160** includes a radio frequency (RF) modem **162**, coupled via connections **168** and **172** to RF electronics element **166**. When the modem **162** receives a transmit signal from the DSP **134** over connection **174**, it produces a corresponding RF transmit signal over connection **172**. The RF electronics element **166** represents one or more components that process a modulated RF transmit signal received from the RF modem **162** via connection **172** and provide a received RF signal to the RF modem **162** via connection **168**. The RF electronics element **166** couples to the antenna **167** via connection **169**. The RF electronics element **166** includes the components necessary to upconvert, transmit, receive and down convert an RF signal. The RF modem **162** modulates the RF signal prior to sending the signal to the RF electronics element **166** and demodulates a received signal from the RF electronics element **166**. The demodulated received signal is transmitted to the DSP **134** via connection **174**. The DSP **134** produces a corresponding digital received signal and transmits it to the microprocessor **126** via connection **136**.

[0025] As mentioned above, if the mobile electronic device **100** is a cellular-type telephone, then the transceiver element **160** includes all the elements used to receive a digital-to-analog converted signal via connection **174** and transmits that information using radio frequency energy. Similarly, the transceiver element **160** also includes all the circuitry used for receiving a radio frequency signal, and providing that signal via connection **174**, for analog-to-digital conversion, to DSP **134** and then to the microprocessor **126**.

[0026] In accordance with an embodiment of the invention, the mobile electronic device **100** includes a memory

element **180** for storing the travel profile **190**. As mentioned above, the memory element **180** may include volatile memory elements, volatile (VOL) data memory **186**, volatile memory elements and nonvolatile (NV) data memory **188**. The travel profile **190** may be located within the NV data **188**. The memory element **180** also includes the location dialing software **192**, which accesses the travel profile **190** and the telephone book **191** when appropriate as further explained below.

[**0027**] The software in memory element **180** may include one or more separate programs, each of which comprise one or more code segments, which are an ordered listing of executable instructions for implementing logical functions. In the example of **FIG. 1**, the software in the memory element **180** includes an operating system **182**, application software **184**, and location dialing software **192**. The application software **184** is executed by the microprocessor **126** in order to perform task specific operations of the mobile electronic device **100**. The location dialing software **192** includes the software code segments that are executed by the microprocessor **126** or another device for placing and receiving calls when the mobile electronic device **100** is in a location other than its home calling area. Hence, the location dialing software **192** may transmit either dialing instruction signals or identification instruction signals to the microprocessor **126**.

[**0028**] When the microprocessor **126** receives the dialing instruction signals, it sends dialing signals to the DSP **134** via connection **136**. In response, the DSP **134** produces a transmit signal that is sent to the transceiver element **160** on connection **174**. The transceiver element **160** processes this signal as previously described. The dialing instruction signals are further described with reference to **FIG. 4**.

[**0029**] The microprocessor **126** transmits display signals on connection **104** when it receives identification instruction signals from the location dialing software **192**. As mentioned above, the microprocessor **126** is coupled to the display element **102** via connection **104**. Hence, the microprocessor **126** produces content for viewing by the user using the display signals. The identification instruction signals and corresponding display signals are described with reference to **FIG. 3**.

[**0030**] With respect to the operating system **182**, any available operating system that can be used to execute the normal functionality of the mobile electronic device **100** can be used. For example, if the mobile electronic device **100** is a PDA, a suitable operating system can be the Windows CE operating system, available from Microsoft Corporation of Redmond, Wash. If the mobile electronic device **100** is a cellular-type mobile communication device, then the operating system **182** may be a proprietary operating system designed by the manufacturer of the device **100**.

[**0031**] With the display **102**, a user may specify certain criteria that affect the use of the mobile electronic device **100**. More specifically, the number of comparison digits (NCD) selection menu **210** shown in **FIG. 2A** may be presented on the display **102**, which enables selection of the NCD. When a user specifies the NCD, the user is specifying how many digits the location dialing software **192** should use in attempting to identify an entry in the telephone book **191** that is associated with an incoming call. When a user specifies the NCD, this number may appear in the selection box **215**. For example, an NCD of 5 means that the location dialing software **192** compares five digits of the telephone number associated with the incoming call to five digits for each entry within the telephone book **191**. The use of the NCD is described in greater detail with reference to **FIG. 4**. Though not shown, the location dialing software **192** may use a default NCD, such as 7, if a user does not specify an NCD or if the specified NCD is not recognizable. This default may be preset during manufacturing customization to satisfy requirements of a particular customer. The NCD may vary between one and thirty-two digits, two and sixteen digits, or some other suitable range. Once the NCD is assigned, it remains constant until a user enters the NCD selection menu **210** and changes the NCD.

[**0032**] The display **102** may also depict a travel profile selection menu **220** used in either enabling or disabling the travel profile **190**. To access this menu, a user may either navigate to this menu or be prompted, as described with reference to **FIG. 6**. Using the toggle **222**, a user may either enable or disable the travel profile **190**. In one embodiment, the mobile electronic device **100** may have a default state where the travel profile **190** is disabled.

[**0033**] In addition to either enabling or disabling the travel profile, the travel profile selection menu **220** may be used in specifying a Home Area Prefix (HAP). As a user enters a HAP, it appears within the box **224**, such as +1770. A HAP may be a collection of alphanumeric characters or symbols placed before the telephone number that are used in satisfying dialing conventions. In an alternative embodiment, the travel profile selection menu **220** may include an additional box where a user may enter a travel destination instead of a HAP. In other words, the location dialing software **192** interprets the information received from the user as a travel destination and attempts to generate the appropriate HAP. This may be done by comparing the information to a list of travel destinations in tables within the memory element **180**. If it is determined that the entered information is not recognizable, a message to the user may be displayed, such as, "reenter destination or prefix," or some other suitable message that will prompt a user to reenter information.

[**0034**] If a destination is recognizable, the mobile electronic device **100** may download via the transceiver element **160** a home area prefix associated with the identified destination. Alternatively, the mobile electronic device **100** may use the memory element **180** for storing home area prefixes for major countries, as well as regions within the United States.

[**0035**] Though not shown, the travel profile selection menu **210** may also include a selection box for enabling a caller identification feature. Hence, a user may specify whether he or she wants identification information displayed, for incoming calls originating from telephone numbers corresponding to entries within the telephone book **191**, while in the identified travel destination. To indicate whether the caller identification function is enabled, a call identification indicator may be used. In an alternative embodiment, a default may be set that enables the caller identification feature. In another alternative embodiment, the caller identification feature may be omitted completely.

[**0036**] **FIG. 3** is a flow chart **300** illustrating an algorithm that describes the operation of the location dialing software **192**. Any process descriptions or blocks in flow charts can

be understood as representing modules, segments, or portions of code which may include one or more executable instructions for implementing specific logical functions or blocks in the process. Alternative implementations are included within the scope of the invention in which functions may be executed out of order from that shown or discussed, including substantially concurrently or in reverse order, depending on the functionality involved, as can be understood by those reasonably skilled in the art.

[0037] In block **305**, the location dialing software **192** receives a call request. This request may result from a user selecting a number from the telephone book **191** and then selecting a dial operation using the user input element **128**. Alternatively, this request may be generated when an incoming call is received by the mobile electronic device **100**, as previously described.

[0038] In block **310**, it is determined whether the call request corresponds to an incoming call. If the call is an incoming call, then in block **315** an incoming call subroutine is run, which is described in greater detail below with reference to **FIG. 4**. If the call request is not an incoming call, then in block **320** it is determined whether the call request received in block **305** corresponds to an outgoing call. If the call is an outgoing call, then in block **325**, an outgoing call subroutine **325** is run, which is described in greater detail with reference to **FIG. 5**.

[0039] **FIG. 4** is a flow chart **315** illustrating the incoming call subroutine **315** described with reference to **FIG. 3**. The incoming subroutine **315** enables a user to identify a stored telephone number associated with an incoming call even when the mobile electronic device **100** is in a location other than a home calling area. A user can identify whether an incoming call is from one of the telephone numbers stored in the telephone book **191**.

[0040] The incoming call subroutine **315** begins at block **405** where the location dialing software **192** identifies the telephone number associated with the incoming call. The internal telephone book **191** can be searched in its entirety until a match is either found or the search is completed.

[0041] In block **410**, the number of comparison digits (NCD) is retrieved. As mentioned above, the NCD may be specified by a user as described in **FIG. 2A**. In block **410**, the number of comparison digits previously specified by a user is retrieved. In block **415**, the least significant digits of the stored entries are compared to the least significant digits of the identified telephone number. For example, specifying five digits as the number of comparison digits results in the least significant five digits in the incoming telephone number serving as the basis for comparison. Those five digits are then compared to the five least significant digits of each stored telephone number.

[0042] When there is at least one stored number with matching least significant digits, an incoming call entry is displayed in block **420**. Displaying the entry may include displaying the stored telephone number. Alternatively, this may involve displaying the name associated with the entry instead of, or in addition to, displaying the telephone number. In another alternative embodiment, displaying the entry may involve displaying some other information that the user associated with the entry, such as a picture, or a movie, or a particular sound or tune might also be sounded. To display the entry, the location dialing software **192** transmits identification instruction signals to the microprocessor **126**, which transmits display signals for the display **102**.

[0043] When at least one stored number with matching least significant digits is not identified, the message, "No Name" may be displayed in block **425** in a manner similar to that described with reference to block **420**. A user can choose whether to answer the call since he knows it is not from an individual associated with one of the telephone numbers stored in the phone book **191**. Alternatively, nothing could be displayed, or only the incoming number might be displayed. In another alternative embodiment, another message, such as "Caller Unknown," or a user selected message, such as "Do not answer," is displayed. If a user-selected message is used, this message may also be specified using the travel profile selection menu **220** described with reference to **FIG. 2B**. After either block **420** or block **425** is completed, the incoming call subroutine **315** ends.

[0044] **FIG. 5** is a flow chart **325** illustrating the outgoing call subroutine **325** described with reference to **FIG. 3**. The outgoing call subroutine **325** enables a user to dial telephone numbers stored in the mobile electronic device **100** when this device is in a location other than a home calling area. The outgoing call subroutine **325** facilitates dialing conventions that are required when the mobile electronic device **100** is in a location other than a home calling area for dialing numbers within the telephone book **191**.

[0045] In block **505**, a stored telephone number is associated with the outgoing call. To accomplish this, the location dialing software **192** may associate a number selected by a user with an outgoing call. In an alternative embodiment, the flow chart **325** may include a block **507**, which runs a profile selection subroutine that is described with reference to **FIG. 6**. When this block is not included within the flow chart **325**, a user may either enable or disable a travel profile as described with reference to **FIG. 2B**. In block **510**, it is determined whether the travel profile **190** is enabled, or activated. As mentioned above, a user may set the toggle **222** either to disabled or enabled (see **FIG. 2B**). To complete block **510**, the status of this toggle may be determined. If the travel profile **190** is not enabled (i.e., toggle **222** is set to disabled), the process proceeds to block **550**, which is subsequently described below.

[0046] If the travel profile **190** is enabled (i.e., toggle **222** is set to enabled), then in the block **515**, it is determined whether the stored number begins with a "+". As mentioned above, a home area prefix (HAP) may be a collection of alphanumeric characters or symbols placed before the telephone number that are used in satisfying dialing conventions in the calling area from which the call is being initiated. The HAP may include an international dialing symbol portion, a regional portion, an international dialing portion and a regional portion, or some combination thereof. For example, the "+" symbol may be an international dialing symbol for the mobile electronic device **100**. In an alternative embodiment, the international dialing symbol may be some other symbol, such as an *, &, or some other suitable symbol. The regional portion can be any type of geographically-based dialing code, such as an area code or country code. Hence, in block **515**, the location dialing software **192** assesses whether there is an international dialing symbol + that precedes the telephone number. In other words, it is assessed

whether a user previously entered the stored telephone number with the international dialing symbol + into the mobile electronic device **100**. If the stored telephone number does begin with the international dialing symbol +, then the process proceeds to block **550**, which is subsequently described below.

[**0047**] If the stored telephone number does not begin with a "+", then in block **520**, it is determined if the Home Area Prefix (HAP) begins with "+". As mentioned above, the HAP may include simply the regional portion, a combination of a regional portion and an international dialing symbol, or simply an international dialing symbol. For example, the HAP may be a +1, +1770, or simply 770. If the HAP does not begin with a "+," then in block **525**, it is determined whether the HAP matches the most significant digits of the stored telephone number identified at block **505**. In other words, it is assessed whether any additional characters stored at the time the user stored the telephone number match the HAP. If the most significant digits of the stored telephone number do match the HAP, the process proceeds to block **550**, which is subsequently described. In this case, dialing may proceed normally because the HAP begins with the international dialing symbol (block **520**) and the entire HAP is included (block **525**).

[**0048**] If it is determined in block **525** that the most significant digits of the stored telephone number did not match the HAP, then in block **530**, the full HAP is added to the preceding stored number. The process then continues at block **550**. If it is determined in block **520** that the home area prefix (HAP) does not start with a "+," then in block **535**, it is determined if the HAP after the "+" (i.e., the regional portion) matches the most significant digits of the stored telephone number. When the regional portion of the HAP does match the most significant digits of the stored telephone number, the international dialing symbol + is added at block **540**. In contrast, the full HAP is added to the stored number at block **545** when the regional dialing portion does not match the most significant digits.

[**0049**] In block **550**, the location dialing software **192** transmits dialing instructions. More specifically, dialing instruction signals are transmitted to the microprocessor **126** on connection **162** (See **FIG. 1**). The microprocessor **126** produces corresponding dialing signals, as previously described, which result in a call being placed.

[**0050**] **FIG. 6** is a flow chart **507** illustrating the optional profile selection subroutine of **FIG. 5**. As described above, this optional subroutine may be used in prompting a user to either enable or disable the travel profile **190**. In block **610**, the current network location is identified based on the geographical location of the mobile electronic device **100**. In other words, it is determined whether the mobile electronic device **100** is located within a home calling area. It is then determined whether the current network is within the home area prefix (HAP) and whether the travel profile **190** is enabled. If both of these conditions are met, the travel profile selection menu **220** is displayed in block **620**. Thus, a user is prompted to disable the travel profile **190** since the mobile electronic device **100** is within the home calling area. Otherwise, it is determined in block **625** whether the current network is outside of the HAP and the travel profile **190** is disabled. When both of these conditions occur, the process continues to block **620** as previously described. Thus, a user is prompted to enable the travel profile **190** since the mobile electronic device **100** is outside of the home calling area. Otherwise, the process ends.

[**0051**] The mobile electronic device **100** creates substantial advantages including increasing device efficiency. More specifically, the mobile electronic device **100** enables users to efficiently dial any number stored within this device's telephone book, despite the geographical region where the device is used, without dialing extra characters when the call is being placed. Either enabling or disabling the travel profile selections can change how all incoming and outgoing calls are handled without having to change entries in the telephone book **191**. In addition, users may improve efficiency with the mobile electronic device **100** by defining numerous travel profiles for regions most frequented. Finally, the mobile electronic device **100** increases efficiency, while potentially decreasing costs associated with device usage, by enabling selective answering of calls. Users can determine whether a call should be answered using the call identification functionality and potentially avoid increased call charges associated with answering unwanted calls.

[**0052**] While various embodiments of the invention have been described, it may be apparent to those of ordinary skill in the art that many more embodiments and implementations are possible that are within the scope of this invention. For example, while illustrated using a portable communication handset or a PDA, the invention is applicable to any mobile electronic device. All such modifications are intended to be included within the scope of this disclosure and the present invention and protected by the following claims.

What is claimed is:

1. A method for dialing a telephone number stored in a mobile electronic device when the mobile electronic device is away from a home calling area, the method comprising:

defining a travel profile for a location with an associated home area prefix;

determining whether the travel profile is enabled;

determining whether the telephone number includes the home area prefix when the travel profile is enabled;

adding characters to the telephone number, wherein adding creates a modified telephone number when it is determined that the telephone number does not include the home area prefix; and

dialing the modified telephone number.

2. The method of claim 1, further comprising dialing the telephone number when the travel profile is not enabled.

3. The method of claim 2, further comprising dialing the telephone number when it is determined that the telephone number does not include the home area prefix.

4. The method of claim 1, further comprising enabling the travel profile when the mobile electronic device is away from the home calling area and disabling the travel profile when the mobile electronic device is within the home calling area.

5. The method of claim 1, further comprising:

receiving an incoming number associated with an incoming telephone call;

determining whether a number of comparison digits associated with least significant digits for the incoming number correspond to least significant digits for the telephone number; and

displaying identifying information when the least significant digits for the incoming number correspond to the least significant digits for the telephone number.

6. The method of claim 5, wherein the number of comparison digits is user-selected.

7. The method of claim 1, wherein determining whether the telephone number includes a home area prefix, further comprises determining whether the telephone number includes an international dialing symbol portion of the home area prefix, and determining whether the telephone number includes a regional portion of the home area prefix.

8. The method of claim 6, wherein adding characters to the telephone number comprises adding the international dialing symbol portion of the home area prefix when it is determined that the home area prefix does not include the international dialing symbol portion, and adding the regional portion of the home area prefix when it is determined that the home area prefix does not include the regional portion.

9. A system for dialing a telephone number stored in a mobile electronic device when the mobile electronic device is away from a home calling area, comprising:

a memory element for storing the telephone number, a travel profile, and location dialing software, wherein the location dialing software is operable for prompting the memory element to generate dialing instruction signals associated with the travel profile;

a microprocessor operatively coupled to receive the dialing instruction signals from the memory element, wherein the microprocessor generates dialing signals in response to receiving the dialing instruction signals; and

a transceiver element coupled to receive the dialing signals and operable for dialing the telephone number when the mobile electronic device is in a location, other than the home calling area.

10. The system of claim 9, wherein the memory element further comprises a non-volatile portion and the travel profile is stored in the nonvolatile portion of the memory.

11. The system of claim 9, wherein the memory element further comprises a telephone book for storing the telephone number.

12. The system of claim 9, wherein the transceiver element is operable for receiving an incoming call and the location dialing software is operable for generating identification instruction signals in response to processing the incoming call, wherein the microprocessor transmits display signals in response to processing the identification instruction signals.

13. The system of claim 11, further comprising a display coupled to receive the display signals from the microprocessor and operable for displaying identifying information in response to receiving the display signals.

14. A computer-readable medium having a program for dialing a telephone number stored in a mobile electronic device when the mobile electronic device is away from a home calling area, the program comprising logic configured to perform:

defining a travel profile for a location with an associated home area prefix;

determining whether the travel profile is enabled;

determining whether the telephone number includes the home area prefix when the travel profile is enabled;

adding characters to the telephone number, wherein adding creates a modified telephone number when it is determined that the telephone number does not include the home area prefix; and

dialing the modified telephone number.

15. The computer-readable medium of claim 14, further comprising dialing the telephone number when the travel profile is not enabled.

16. The computer-readable medium of claim 15, further comprising dialing the telephone number when it is determined that the telephone number does not include the home area prefix.

17. The computer-readable medium of claim 14, further comprising enabling the travel profile when the mobile electronic device is away from the home calling area and disabling the travel profile when the mobile electronic device is within the home calling area.

18. The computer-readable medium of claim 14, further comprising:

receiving an incoming number associated with an incoming telephone call;

determining whether a user-selected number of comparison digits associated with least significant digits for the incoming number correspond to least significant digits for the telephone number; and

displaying identifying information when the least significant digits for the incoming number correspond to the least significant digits for the telephone number.

19. The computer-readable medium of claim 14, wherein determining whether the telephone number includes a home area prefix, further comprises determining whether the telephone number includes an international dialing symbol portion of the home area prefix, and determining whether the telephone number includes a regional portion of the home area prefix.

20. The computer-readable medium of claim 19, wherein adding characters to the telephone number comprises adding the international dialing symbol portion of the home area prefix when it is determined that the home area prefix does not include the international dialing symbol portion, and adding the regional portion of the home area prefix when it is determined that the home area prefix does not include the regional portion.

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